

CLAIMS:

1. A table saw comprising:

a frame including a table defining a work surface;

a rotatable blade coupled to the frame and extendable up through the work surface;

an adjustment mechanism configured to adjust the position of the blade relative to the table;

a detection system configured to detect contact between a person and the blade;

a brake mechanism configured to engage and stop the blade upon detection of contact between the person and the blade; and

a brake positioning system configured to adjust the position of the brake mechanism to maintain the brake mechanism in an operative position relative to the blade as the position of the blade is adjusted.

2. The table saw of claim 1, where the adjustment mechanism is configured to adjust the vertical position of the blade relative to the table.

3. The table saw of either of claim 1, where the adjustment mechanism is configured to adjust the angular position of the blade relative to the table.

4. The table saw of claim 1, where the blade is coupled to the frame by a support structure that is selectively positionable relative to the frame, and where the brake mechanism is coupled to the support structure.

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5. The table saw of claim 4, where the support structure includes an arbor block adapted to support a rotatable arbor, where the blade is mounted on the arbor, and where the brake mechanism is mounted on the arbor block.

6. The table saw of claim 1, where the engagement of the brake mechanism with the blade tends to urge the blade downward.

7. The table saw of claim 6, where the brake mechanism is configured to retract the blade below the work surface.

8. The table saw of claim 1, where the blade includes one or more cutting teeth, and where the brake mechanism is configured to engage the teeth of the blade.

9. The table saw of claim 8, where the brake mechanism includes at least one brake pawl spaced-apart from the blade and adapted to pivot into the teeth of the blade.

5 10. The table saw of claim 1, where the brake mechanism is configured to stop the movement of the blade within 10 milliseconds after contact between the person and the blade is detected.

10 11. The table saw of claim 1, where the blade includes one or more cutting teeth, and where the brake mechanism includes a brake pawl and an actuator having stored energy sufficient to move the brake pawl from a ready position spaced-apart from the blade to a braking position in contact with the teeth of the blade within 5 milliseconds after contact between the person and the blade is detected.

15 12. The table saw of claim 1, where the blade includes one or more cutting teeth, and where the brake mechanism includes a brake pawl and an actuator having stored energy sufficient to move the brake pawl from a ready position spaced-apart from the blade to a braking position in contact with the teeth of the blade at an acceleration of at least 300 m/s^2 when the detection system detects contact between the person and the blade.

13. A woodworking machine comprising:

an electrically conductive cutter;

a detection system adapted to detect contact between a user and the cutter;

a brake system adapted to engage and stop the cutter when the detection system

5 detects contact between the user and the cutter; and

a frame supporting the cutter, where the cutter is adapted to be raised and lowered relative to the frame, and where the brake system is configured to raise and lower with the cutter.

14. A woodworking machine comprising:

an electrically conductive cutter;

a detection system adapted to detect contact between a user and the cutter;

a brake system adapted to engage and stop the cutter when the detection system

15 detects contact between the user and the cutter; and

a frame supporting the cutter, where the cutter is adapted to be tilted relative to the frame, and where the brake system is configured to tilt with the cutter.

15. A table saw comprising:

a frame including a table defining a work surface;

a rotatable blade coupled to the frame and extendable up through the work surface;

adjustment means for adjusting the position of the blade relative to the table;

detection means for detecting contact between a person and the blade;

brake means for engaging and stopping the blade upon detection of contact between the person and the blade; and

brake positioning means for maintaining the brake means in an operative position relative to the blade as the position of the blade is adjusted.

16. A table saw comprising:

a frame including a table defining a work surface;

a rotatable blade coupled to the frame and extendable up through the work surface;

an adjustment mechanism configured to adjust the position of the blade relative to the table;

a detection system configured to detect contact between a person and the blade;

and

a brake mechanism configured to engage and stop the blade upon detection of contact between the person and the blade, where the engagement of the brake mechanism with the blade tends to urge the blade downward.

17. The table saw of claim 16, where the blade is oriented relative to the work surface to define a front edge region adapted to cut workpieces on the work surface, and a rear edge region opposite the front edge region, and where the brake mechanism is configured to engage the blade adjacent the rear edge region.

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18. The table saw of claim 16, where the brake mechanism is configured to retract the blade below the work surface upon detection of contact between a person and the blade.

19. The table saw of claim 16, where the blade has angular momentum when rotating, and the brake mechanism is configured to retract the blade by using, at least partially, the angular momentum of the blade.

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20. The table saw of claim 16, where the blade includes one or more cutting teeth, and where the brake mechanism is configured to engage the teeth of the blade.

21. The table saw of claim 16, where the brake mechanism includes at least one brake pawl adapted to pivot into the teeth of the blade.

5 22. The table saw of claim 16, where the brake mechanism is configured to stop the movement of the blade within 10 milliseconds after contact between the person and the blade is detected.

10 23. The table saw of claim 16, where the blade includes one or more cutting teeth, and where the brake mechanism includes a brake pawl and an actuator having stored energy sufficient to move the brake pawl from a ready position spaced-apart from the blade to a braking position in contact with the teeth of the blade within 5 milliseconds after contact between the person and the blade is detected.

15 24. The table saw of claim 16, where the blade includes one or more cutting teeth, and where the brake mechanism includes a brake pawl and an actuator having stored energy sufficient to move the brake pawl from a ready position spaced-apart from the blade to a braking position in contact with the teeth of the blade at an acceleration of at least 300 m/s² when the detection system detects contact between the person and the blade.

25. A table saw comprising:

a frame including a table defining a work surface;

a rotatable blade coupled to the frame and extendable up through the work surface;

adjustment means for adjusting the position of the blade relative to the table;

detection means for detecting contact between a person and the blade; and

brake means for engaging and stopping the blade upon detection of contact between the person and the blade, where the engagement of the brake means with the blade tends to urge the blade downward.

26. A table saw comprising:

a worksurface;

a rotatable blade adapted to raise and lower relative to the worksurface around a pivot point;

a gear system adapted to raise and lower the blade; and

a release in the gear system adapted to allow the blade to drop down relative to the worksurface upon the occurrence of a specified event.

27. The table saw of claim 26 where the specified event is braking the blade.

28. The table saw of claim 26 further comprising a stop to limit the dropping down of the blade.

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29. A table saw comprising:

a worksurface; and

a rotatable blade adapted to raise and lower relative to the worksurface around a pivot point, where the rotation of the blade defines a feed direction for a workpiece to be fed into the saw, and where the pivot point is downstream of the blade relative to the feed direction.